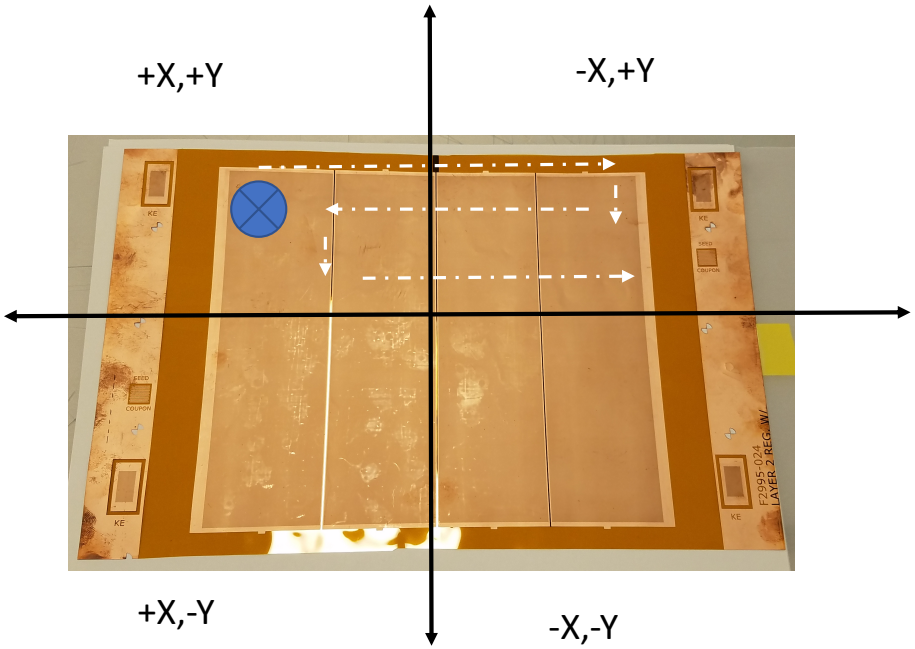
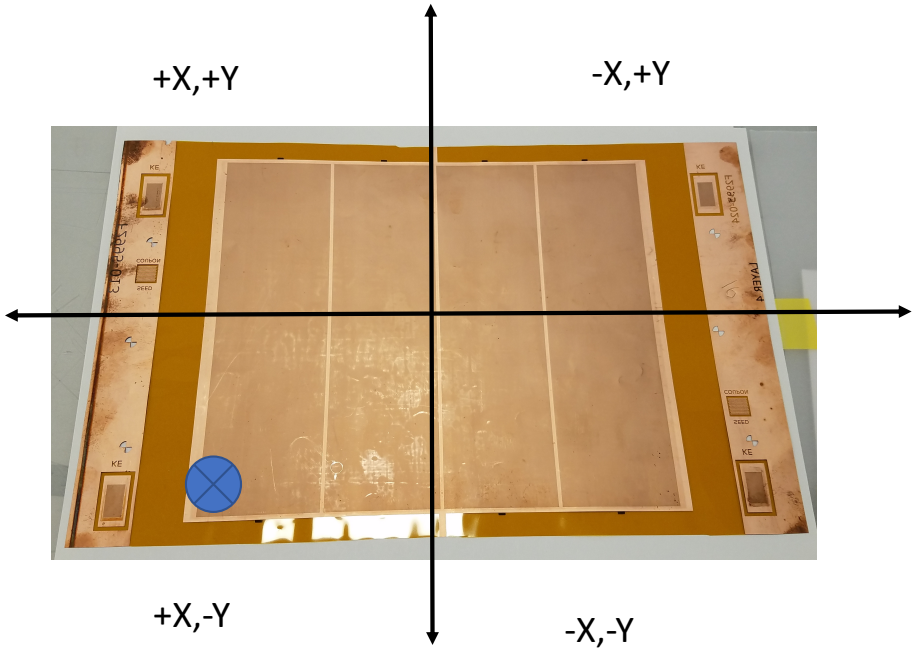
Scanning Orientation

- Scanning motion follows a zig-zag pattern starting at +X,+Y corner and goes until it hits the –X,-Y corner, as shown in segmented side image (white arrows) .
- Scanned foils ~ 20 cm x 17 cm.



Segmented Side

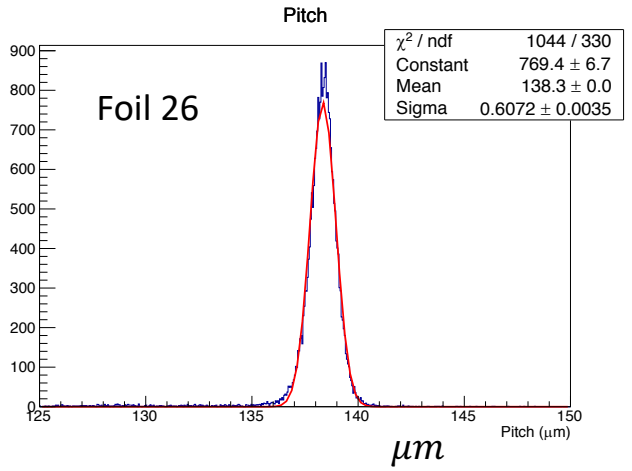


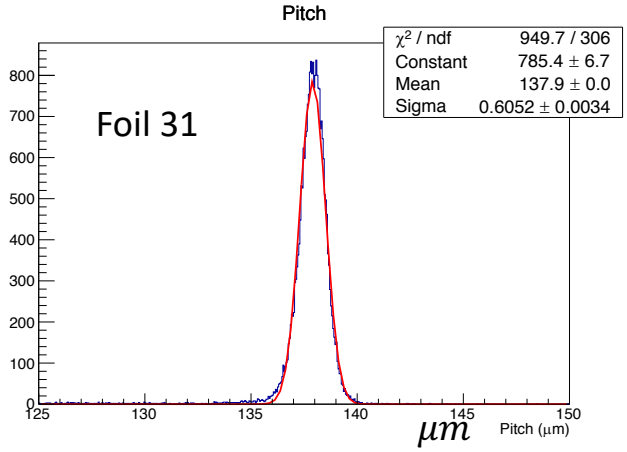
Un-Segmented Side – foil is flipped toward the viewer (out of the screen).

Pitch Distributions

- Scanned foils ~ 20 cm x 17 cm.
- Mean pitch and distribution width consistent between GEM foils.

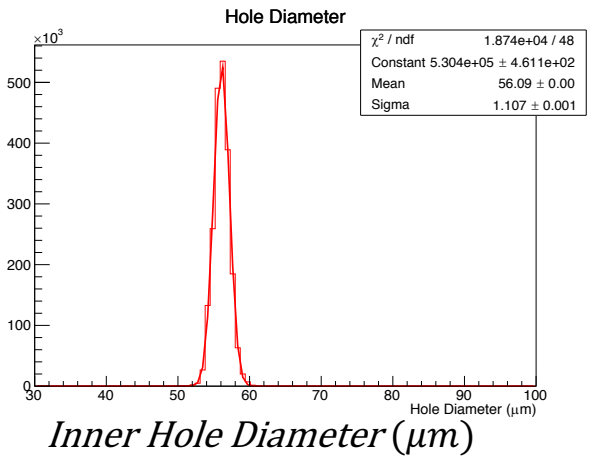
Foil	Mean (μm)	Gaussian Sigma (μm)
26	138.3	0.61
31	137.9	0.61

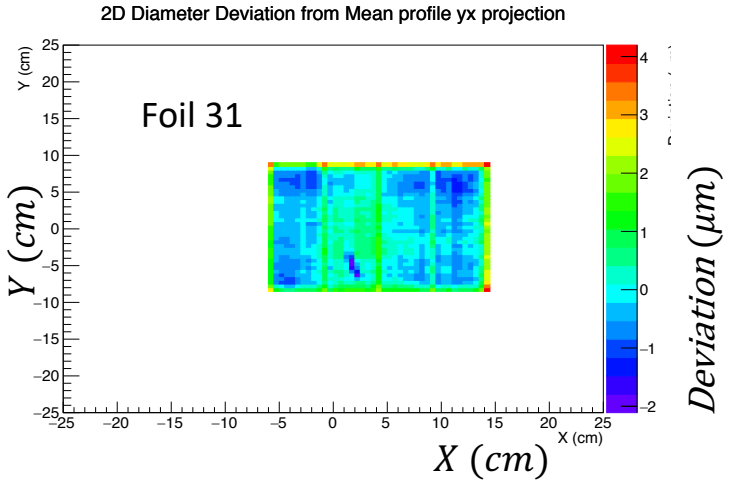


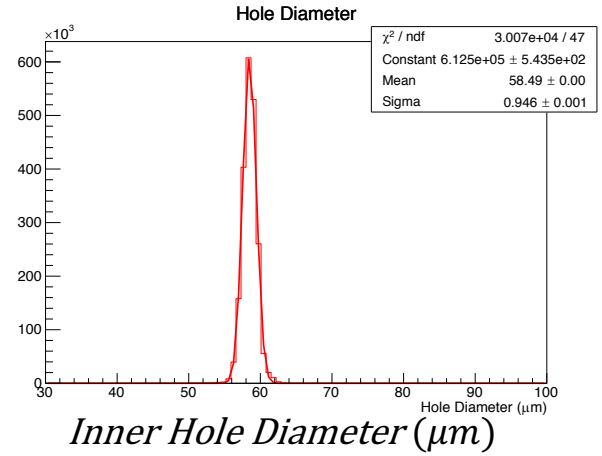


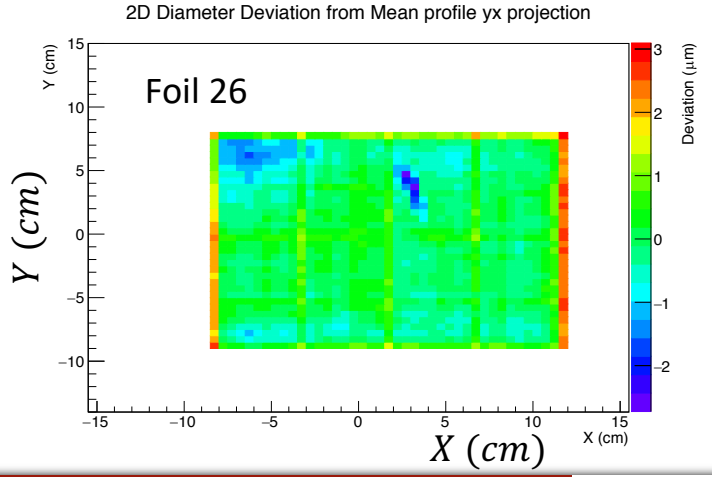
Inner Hole Diameter Distributions

Foil	Mean (μm)	Gaussian Sigma (μm)
26	58.5	0.95
31	56.1	1.11



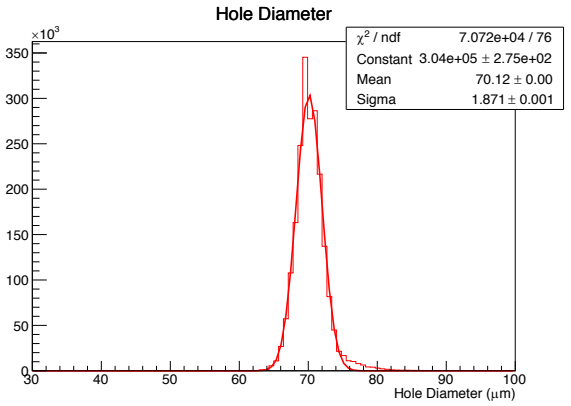




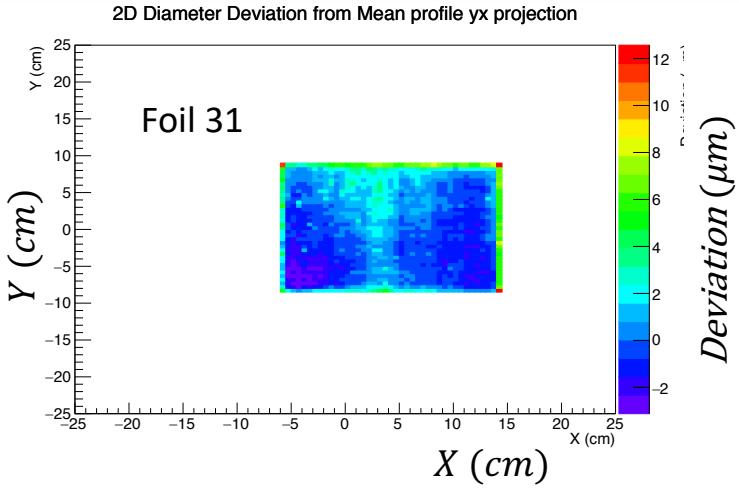


Outer Hole Diameter Distributions (Segmented Side)

Foil	Mean (μm)	Gaussian Sigma (μm)
26	72.2	1.84
31	70.1	1.87



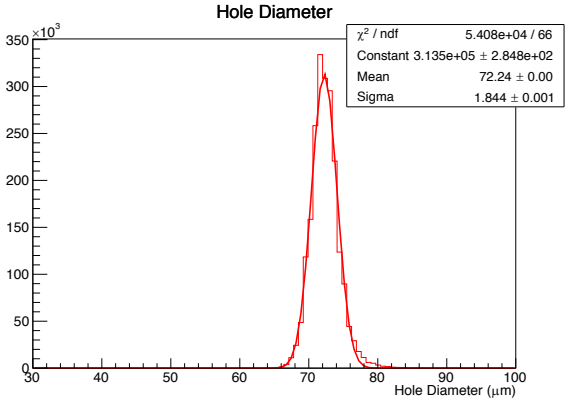
Outer Hole Diameter (μm)



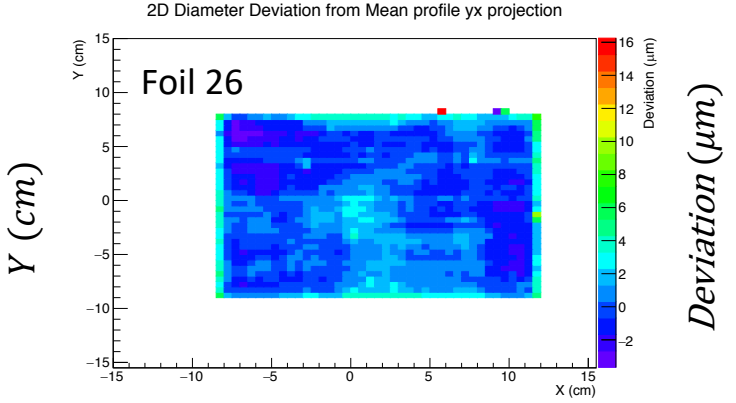
$Y\ (cm)$

$X\ (cm)$

$Deviation\ (\mu m)$



Outer Hole Diameter (μm)



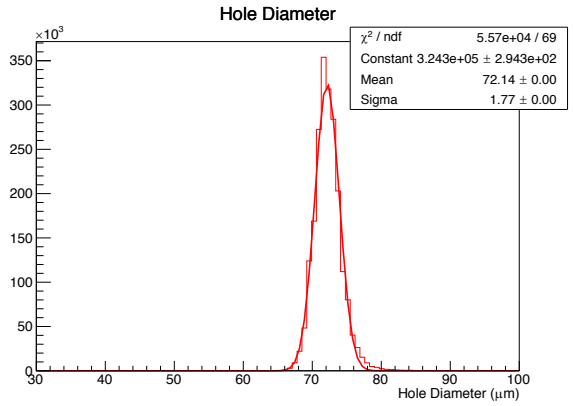
$Y\ (cm)$

$X\ (cm)$

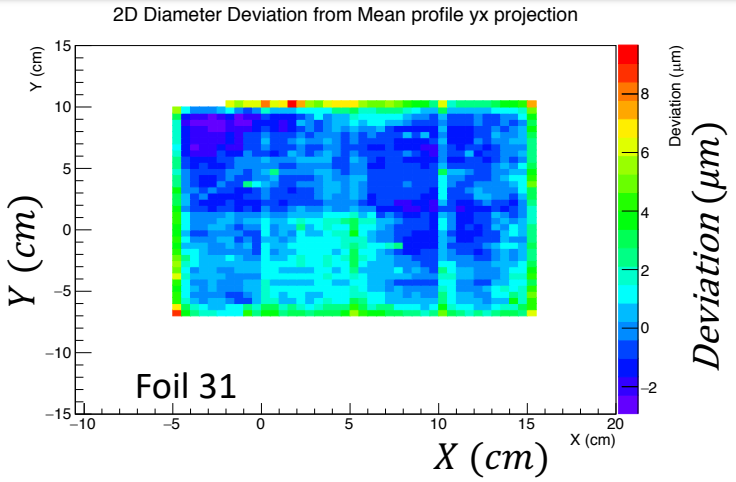
$Deviation\ (\mu m)$

Outer Hole Diameter Distributions (Un-Segmented Side)

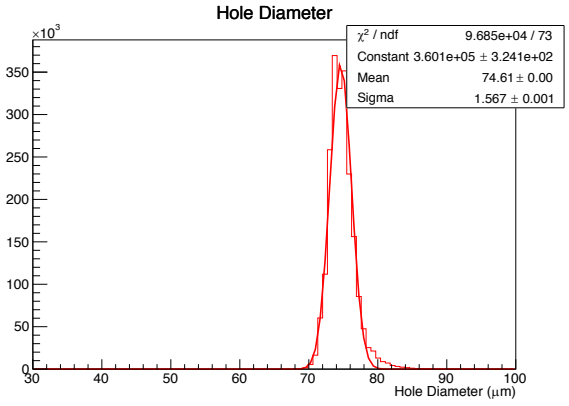
Foil	Mean (μm)	Gaussian Sigma (μm)
26	74.6	1.57
31	72.1	1.77



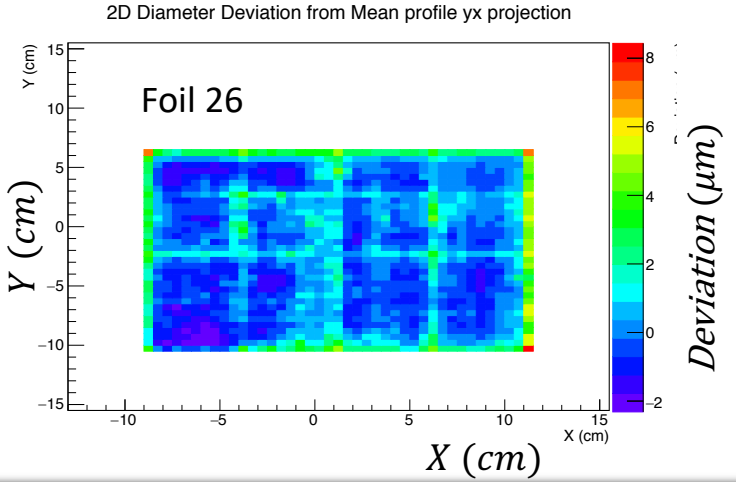
Outer Hole Diameter (μm)



Y (cm) *X (cm)* *Deviation* (μm)



Outer Hole Diameter (μm)



Y (cm) *X (cm)* *Deviation* (μm)

Summary

- Hole diameter and pitch uniformity across each foil looks good.
  - Distribution widths within a few μm.
- Overall, foil geometries look to be on par with standards.
- One foil (26) mean measurements appears to be a couple μm larger than the other foil (31).
  - Large gain variations I don't think would be caused by variations of a couple μm in hole diameters.
- I don't think the foil geometry is responsible for large gain variations.